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EDWARDS & ANGELL, LLP
P.O. BOX 55874
BOSTON, MA 02205

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/756,493
Filing Date: January 08, 2001
Appellant(s): TAKEMORI ET AL.

David A. Tucker
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/15/2005 appealing from the Office action mailed 07/26/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,544,143	Kay et al.	08-1996
6,272,097	Nakao et al.	08-2001
4,400,062	Mori et al.	08-1983

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 and 3-11 are rejected under 35 U.S.C. 103(a). This rejection is set forth in a prior Office Action, mailed on 07/26/2005.

Claim Rejections - 35 USC § 103

Claims 1 and 3-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kay et al. U.S. Patent No. 5,544,143 in combination with Nakao et al. U.S. patent No. 6,272,097 and further in view of Mori et al. U.S. Patent No. 4,400,062.

Regarding claim 1, Kay et al. discloses an integrated unit (See col. 4, lines 35-37; Fig. 1, ref # 30), comprising:

a laser beam source for emitting a laser beam (See col. 4, lines 45-47; Fig. 1, ref. # 40);

a detecting portion for detecting reflection of said emitted laser beam(See col. 6, lines 13-14; Fig. 1, ref. # 68);

optical elements for controlling the pathways defined by said emitted laser beam and said reflection thereof (See col. 4, lines 25-28; Fig. 1),

said optical elements including at least a diffraction element for diffracting said emitted laser beam and said reflection thereof (See col. 4, lines 47-50; Fig. 1, ref. # 42)

and a casing accommodating said laser beam source and said detecting portion (See col. 4, lines 35-37; Fig. 1, ref. # 30,32),and

a transparent optical compensation film being formed integrally with one of said optical elements or with an end of said casing so as to be disposed in said optical pathways defined by said emitted laser beam and said reflection thereof (See col. 4, lines 33 to col. 5, lines 1-35; Fig. # 1, ref. # 34).

Kay et al. further teaches wherein the light could have other circular or other polarizations by another optical compensation element included in the pathways of the optical elements (See col. 4, line 61 to col. 5, line2).

But Kay et al. does not expressly disclose the transparent optical compensation film to circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly or elliptically polarized.

However, this feature is well known in the art as evidenced by Nakao et al., which discloses an integrated unit having an optical single layer compensation film formed integrally with other optical elements (See col. 4, lines 14-17; Fig. 1, ref# 7) for circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly polarized (See col. 4, lines 44-47)

Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention to integrally include the compensation film to circularizing the polarization of light passing therethrough in order to obtain a small integrated unit by a simple manufacturing process, as suggested by Nakao et al.

But Kay et al. in combination with Nakao et al. does not expressly disclose that the compensation film comprises a uniaxially-stretched or biaxially-stretched polyolefin-type polymer film.

However, this feature is well know in the art as evidenced by Mori et al., which teaches a compensation element included in the pathways of the optical elements of an optical pickup comprising a compensation film uniaxially-stretched or biaxially-stretched single layer polyolefin-type polymer film characterized by ("a first type of film index ellipsoid/uniaxially or biaxially stretched"), "said single layer polyolefin-type polymer film characterized by said first type of film index ellipsoid having been formed by uniaxially stretched or biaxially stretching a polyolefin-type polymer film characterized by a film index ellipsoid of a different type from said first type of film index ellipsoid such that said film index ellipsoid of said different type from said first type of film index ellipsoid is changed into said first type of film index ellipsoid by said stretching", function of changing polarization state of the laser beam (See col. 1, line 10 to col. 2, line 51).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a compensation film of single layer high polymer film in order to effectively obtain the function of changing polarization state of the laser beam entering to the optical storage medium, as taught by Mori et al.

Regarding claim 3, the combination of Kay et al. with Nakao et al. and Mori et al., shows wherein said optical compensation film is attached onto said diffraction element (See Kay et al., Fig. 1, ref # 34,42)

Regarding claim 4, the combination of Kay et al. with Nakao et al. and Mori et al. shows including said optical compensation film inside of said diffraction element (See Kay et al., col. 5, lines 15-19).

Regarding claim 5, the combination of Kay et al. with Nakao et al. and Mori et al. shows wherein said casing and said optical compensation film are integrated (See Kay et al., Fig. 1, ref # 30,32,34).

Regarding claim 6, the combination of Kay et al. with Nakao et al. would and Mori et al. shows including a cap member, provided to said casing, for closing an opening (See Kay et al., Fig. 1, ref. # 65).

Regarding claim 7, the combination of Kay et al. with Nakao et al. and Mori et al. shows wherein said cap member and an optical compensation film are integrated (See Kay et al., Fig. 1, ref. # 34,65).

Regarding claim 8, the combination of Kay et al. with Nakao et al. and Mori et al. shows wherein said diffraction element has a diffraction pattern for diffracting a laser beam, said diffraction pattern being formed on said optical compensation film (See Kay et al., col. 5, lines 3-22).

Regarding claim 9, the combination of Kay et al. with Nakao et al. and Mori et al. shows wherein said diffraction element has a diffraction pattern for diffracting a laser beam, said optical compensation film being formed on said diffraction pattern (See Kay et al., col. 5, lines 3-22).

Regarding claim 10, Kay et al. discloses an optical pickup for reading information recorded on an optical disk by condensing a laser beam onto the optical disk (See col. 1, lines 24-30; col. 4, lines 33-47), comprising):

a laser beam source for emitting a laser beam (See col. 4, lines 45-47; Fig. 1, ref. # 40);

a detecting portion for detecting a reflection of said emitted laser beam (See col. 6, lines 13-14; Fig. 1, ref. # 68);

optical elements for controlling the pathways defined by said emitted laser beam and said reflection thereof (See col. 4, lines 25-28; Fig. 1),

said optical elements including at least a diffraction element for diffracting said emitted laser beam and said reflection thereof (See col. 4, lines 47-50; Fig. 1, ref. # 42);

a casing accommodating said laser beam source and said detecting portion (See col. 4, lines 35-37; Fig. 1, ref. # 30,32),

and integrated unit in which said diffraction element and said casing are integrated (See col. 4, lines 33-47 to col. 5, lines 1-35; Fig. # 1, ref. # 30,32,42)

an objective lens for condensing the laser beam onto the optical disk (See Fig. 1, ref. # 52),

a transparent optical compensation film being formed integrally with one of said elements or with an end of said casing so as to be disposed in said optical pathways defined by said emitted laser beam and said reflection thereof (See col. 4, lines 33 to col. 5, lines 1-35; Fig. # 1, ref. # 34).

Kay et al. further teaches wherein the light could have other circular or other polarizations by another optical compensation element included in the pathways of the optical elements (See col. 4, line 61 to col. 5, line2).

But Kay et al. does not expressly disclose the transparent optical compensation film to circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly or elliptically polarized.

However, this feature is well known in the art as evidenced by Nakao et al., which discloses an integrated unit having an optical single layer compensation film formed integrally with other optical elements (See col. 4, lines 14-17; Fig. 1, ref# 7) for circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly polarized (See col. 4, lines 44-47)

Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention to integrally include the compensation film to circularizing the polarization of light passing therethrough in order to obtain a small integrated unit by a simple manufacturing process, as suggested by Nakao et al.

But Kay et al. in combination with Nakao et al. does not expressly disclose that the compensation film comprises a uniaxially-stretched or biaxially-stretched polyolefin-type polymer film.

However, this feature is well know in the art as evidenced by Mori et al., which discloses compensation element included in the pathways of the optical elements of an optical pickup comprising a compensation film uniaxially-stretched or biaxially-stretched single layer polyolefin-type polymer film characterized by ("a first type of film index ellipsoid/uniaxially or

biaxially stretched"), "said single layer polyolefin-type polymer film characterized by said first type of film index ellipsoid having been formed by uniaxially stretched or biaxially stretching a polyolefin-type polymer film characterized by a film index ellipsoid of a different type from said first type of film index ellipsoid such that said film index ellipsoid of said different type from said first type of film index ellipsoid is changed into said first type of film index ellipsoid by said stretching", function of changing polarization state of the laser beam (See col. 1, line 10 to col. 2, line 51; col. 3, line 42 to col. 4, line 43).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a compensation film of high polymer film in order to effectively obtain the function of changing polarization state of the laser beam entering to the optical storage medium, as taught by Mori et al.

Regarding claim 11, Kay et al. discloses an optical pickup for reading information recorded on an optical disk by condensing a laser beam onto the optical disk (See col. 4, lines 33-35; Fig. 1), comprising:

a laser beam source for emitting a laser beam (See col. 4, lines 45-47; Fig. 1, ref. # 40);

a detecting portion for detecting a reflected light (See col. 6, lines 13-14; Fig. 1, ref. # 68);

a diffraction element for diffracting the laser beam (See col. 4, lines 47-50; Fig. 1, ref. # 42);

a casing accommodating said laser beam source and said detecting portion (See col. 4, lines 35-37; Fig. 1, ref. # 30,32);

an integrated unit in which said diffraction element and said casing are integrated (See col. 4, lines 33 to col. 5, lines 1-35; Fig. 1, ref # 30,32,42);

an objective lens for condensing the laser beam onto the optical disk (See Fig. 1, ref. # 52);

and a reflection mirror for changing a direction of the laser beam,

wherein said reflection mirror is integrated with a transparent optical compensation film a (See col. 6, lines 18-24; Fig. 1, ref. # 34,64).

Kay et al. further teaches wherein the light could have other circular or other polarizations by another optical compensation element included in the pathways of the optical elements (See col. 4, line 61 to col. 5, line2).

But Kay et al. does not expressly disclose the transparent optical compensation film to circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly or elliptically polarized.

However, this feature is well known in the art as evidenced by Nakao et al., which discloses an integrated unit having an optical single layer compensation film formed integrally with other optical elements (See col. 4, lines 14-17; Fig. 1, ref# 7) for circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly polarized (See col. 4, lines 44-47)

Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention to integrally include the compensation film to circularizing the polarization of

light passing therethrough in order to obtain a small integrated unit by a simple manufacturing process, as suggested by Nakao et al.

But Kay et al. in combination with Nakao et al. does not expressly disclose that the compensation film comprises a uniaxially-stretched or biaxially-stretched polyolefin-type polymer film.

However, this feature is well know in the art as evidenced by Mori et al., which discloses compensation element included in the pathways of the optical elements of an optical pickup comprising a compensation film uniaxially-stretched or biaxially-stretched single layer polyolefin-type polymer film characterized by ("a first type of film index ellipsoid/uniaxially or biaxially stretched"), "said single layer polyolefin-type polymer film characterized by said first type of film index ellipsoid having been formed by uniaxially stretched or biaxially stretching a polyolefin-type polymer film characterized by a film index ellipsoid of a different type from said first type of film index ellipsoid such that said film index ellipsoid of said different type from said first type of film index ellipsoid is changed into said first type of film index ellipsoid by said stretching", function of changing polarization state of the laser beam (See col. 1, line 10 to col. 2, line 51; col. 3, line 42 to col. 4, line 43).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a compensation film of high polymer film in order to effectively obtain the function of changing polarization state of the laser beam entering to the optical storage medium, as taught by Mori et al.

(10) Response to Argument

1. Appellants argues that there is absolutely no teaching, disclosure or suggestion anywhere in the Kay et al. reference that the transparent substrate 34 is contemplated to be an optical compensation film or for that matter to any way evidence a compensation function (page 15). Appellants argues that Kay et al. does not teach or suggest the use of any compensation film integrated with another element of the device that accomplish the required compensation function of the invention (page 16).

The examiner disagrees because, Appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In this case, Kay et al. discloses using a transparent optical compensation film in order to a zero order diffraction component of the light beam passes undeflected and alternatively Kay et al. integrate the compensation film with other elements (col. 4, lines 52 to col. 5, line 35).

Kay et al. has the desirability of circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly or elliptically polarized (col. 4, lines 561 to col. 5, line 35), but does not expressly disclose the transparent optical compensation film to specifically circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly or elliptically polarized.

And, as outlined in the above rejections the well known feature in the art is evidenced by Nakao et al., which discloses an integrated unit having an optical single layer compensation film (7) formed integrally with other optical elements (See col. 4, lines 14-17; Fig. 1, ref# 7) for

circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly polarized (See col. 4, lines 44-47).

2. Appellants argues that Nakao et al reference does not disclose or suggest that the "compensation layer" could be can be a compensation film as claimed (page 17).

The examiner disagrees with the Appellants because Nakao et al reference clearly and specifically disclose that the compensation layer 7, is for specifically circularizing the polarization of light passing therethrough such that light exiting therefrom is circularly or elliptically polarized, which performs the same function as claimed.

Appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It would have been obvious to one with ordinary skill in the art at the time of the invention to integrally include the compensation film as a layer to circularizing the polarization of light passing therethrough in order to obtain a small integrated unit by a simple manufacturing process, as taught and suggested by Nakao et al.

3. Appellants argues that the claimed polyolefin-type polymer film is specifically claimed to be a single layer structure wherein an original film ellipsoid type has been changed into a different ellipsoid type by uniaxial or biaxial stretching, and where the film claimed is not the same structurally or functionally as the manufactured subsequent uniaxial stretching of Mori et al

reference (page 18). Appellants argues that the compensation film of Mori et al reference is a stacked waveplate and is composed of a plurality of layers of film and in that the film ellipsoid type of claimed film **prior to subsequent uniaxial or biaxial stretching presently claimed for the purpose of changing the original film ellipsoid type** (page 19), and that the stretched film should be subjected to any further stretching whether uniaxial or biaxial (page 19).

The examiner disagrees, because first the examiner cannot concur in that the claimed invention requires the stretched film should be subjected to any further stretching whether uniaxial or biaxial.

The claimed invention only requires "a single layer polyolefin-type polymer film characterized by said first type of film index ellipsoid having been formed by uniaxially stretched or biaxially stretching a polyolefin-type polymer film characterized by a film index ellipsoid of a different type from said first type of film index ellipsoid such that said film index ellipsoid of said different type from said first type of film index ellipsoid is changed into said first type of film index ellipsoid by said stretching".

As outlined, such first type film index ellipsoid is formed by uniaxial or biaxially stretching, but there is absolutely no mention of any further or additional stretching performed to the single layer polyolefin-type (polypropylene) polymer film to obtain such different type of film index ellipsoid. In fact, Appellant's owns specification (page 5, lines 19-31) discloses that the uniaxial or biaxial stretching is performed to the original plastic material of a normal film, wit no mention of any preliminary stretching having been performed, as recited below:

"More specifically, the optical compensation film according to the present invention can be formed by subjecting to plastic forming such as uniaxial stretching or biaxial stretching a high

polymer of polyolefin-type that is even and has little deformation. Moreover, the present optical compensation film has a prescribed birefringence distribution. The polymer member having even molecular orientation with a birefringence that is at most 10 nm is subjected to high accuracy stretching operation in the uniaxial or biaxial direction, thereby causing displacement in the molecular orientation, which results in the optical film attaining optical anisotropy. FIG. 12 shows the models of index ellipsoids before and after the stretching operation. If planar refractive index is represented by nx, ny, and the refractive index in the thickness direction is represented by nz, nx>ny≥nz would be established for the optical compensation film formed by stretching of a normal polymer film".

Nevertheless, Mori et al. discloses a single layer structure wherein an original film ellipsoid type has been changed into a different ellipsoid type by uniaxial or biaxial stretching.

Mori et al, discloses that a high polymer film, which such high polymer film is in fact a birefringent material that contains different refractive indexes (i.e. index ellipsoids; see col. 1, lines 33-36), is stretched until obtaining the desired compensation characteristics of such film with such stretched indexes (see col. 1, lines 49-52).

Furthermore, Mori et al. discloses that a birefringence material of material high molecular film, which is a material of birefringence properties has different refractive indexes, therefore a the material with such birefringence properties has different type of index ellipsoid and by controlling the stretching the single layer polyolefin-type obtains the desired index ellipsoid (first type index ellipsoid) that accomplish the desired compensation function for example ¼ phase or ½ phase wave plate.

The examiner cannot concur with the Appellants in that the Mori et al. reference compensation film is a stacked waveplate and is composed of a plurality of layers as argued. As outlined above, the examiner is relying on the **BACGROUND OF THE INVENTION** teachings of Mori et al. on col. 1, lines 5-60, and not the preferred embodiment of Mori et al.'s invention.

Therefore, the film as claimed is the same structurally and functionally as that of Mori et al.'s disclosed film.

Furthermore, A "product by process" claim is directed to the product per se, no matter how actually made, see In re Hirao, 190 USPQ 15 at 17 (footnote 3, CCPA, 5/27/76); In re Brown, 173 USPQ 685 (CCPA 5/18/72); In re Luck, 177 USPQ 523 (CCPA, 4/26/73); In re Fessmann, 180 USPQ 324 (CCPA, 1/10/74); In re Thorpe, 227 USPQ 964 (CAFC, 11/21/85).

The patentability of the final product in a "product by process" claim must be determined by the product itself and not the actual process and an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not.

4. Appellants argues that the "further stretching of the uniaxial stretched film would probably be expected by those skilled in the art to alter the internal molecular orientation of the film material in a manner not contemplated or intended by Mori et al.", and, where such location of the optical axis within the plane of the film pieces and/or deflection of the optical axis out of the plane of the film, and/or creation of two optical axes all are beyond the scope of the teachings of the Mori et al. reference (page 20).

The examiner cannot concur with Appellants, because though none of these features are actually claimed. Mori et al. clearly contemplate altering the internal molecular orientation, because Mori et al. discloses that "a material having birefringent properties has different refractive indexes and light transmission speeds for light polarized in different, usually orthogonal directions", and by controlling the stretching so as to obtain a desired compensation function "control the thickness of stretched high molecular films accurately enough to use them for 1/4 wavelength or 1/2 wavelength plates".

Furthermore, those skilled in the art would contemplate altering the internal molecular orientation as evidence by Mori U.S. Patent No. 5,559,618, submitted as *extrinsic evidence*, which clearly states, "uniaxially stretched polyolefin-type polymer film generally contains index ellipsoid (i.e. the internal molecular orientations) and is altered by uniaxially or biaxially stretching to obtain the direction of the indexes ellipsoids", hence, obtaining the desired location of the optical axis within the plane of the film pieces and/or deflection of the optical axis out of the plane of the film, and/or creation of two optical axes" (col. 6, lines 38 to col. 7, line 30).

5. Appellants argues that Mori et al. requires a stacked composite film with the optical axes of various layers to achieve a result similar to that achieved by the present invention with a single layer film formed in the manner claimed (page 21).

The examiner cannot concur with the Appellants in that the Mori et al. reference compensation film is a <u>stacked</u> waveplate and is composed of a plurality of layers as argued. As outlined above, the examiner is relying on the **BACGROUND OF THE INVENTION**

teachings of Mori et al. on col. 1, lines 5-60, and not the preferred embodiment of Mori et al.'s invention.

Therefore, the film as claimed is the same structurally and functionally as that of Mori et al.'s disclosed film.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jorge L. Ortiz-Criado
Patent Examiner
Art Unit 2656

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER

Conferees:
Andrea L. Wellington
Wayne R. Young